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# Chemical Warfare in Laos

Approved For Release 2009/05/27 : CIA-RDP84B00049R001002500013-5

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## Chemical Warfare in Laos

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### Summary

Vietnamese and Laotian forces almost certainly have used both lethal and nonlethal chemical agents against dissident Hmong (Meo) tribesmen over a period of almost four years.<sup>1</sup> The most recent reported attack was in April 1980. Refugees [ ] claimed repeated chemical attacks on combatant and civilian populations and consistently described employment of chemicals delivered by rockets, bombs, sprays, and artillery weapons. [ ]

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In 150 chemical assaults, thousands of people were affected, and many were killed. The reported symptoms indicate that at least three types of chemical agents were used: a nerve agent, a riot-control agent, and an unknown highly toxic chemical or combination of chemicals. [ ]

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[ ] Neither Laos nor Vietnam is believed to have the capability to manufacture chemical agents or munitions in quantities sufficient to conduct even limited offensive chemical operations. [ ]

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<sup>1</sup> Neither Vietnam nor Laos has signed or ratified the 1925 Geneva Protocol prohibiting the first use of chemical warfare. [ ]

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*This memorandum was written by [ ] Office of Scientific and Weapons Research. Comments and queries are welcome and should be directed to Chief, Life Sciences Branch, Science and Technology Division [ ] Information available as of 19 May 1980 has been used in preparing this report. [ ]*

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*This memorandum has been coordinated with the Office of Strategic Research and the Directorate of Operations, and reviewed by the National Intelligence Officers for General Purpose Forces and Near East and South Asia, and the Arms Control Intelligence Staff. [ ]*

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**Chemical Warfare  
in Laos**

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**Background**

The chemical warfare (CW) attacks by the Vietnamese and Laotian forces against the Hmong tribesmen have been reported by many refugees who were eyewitnesses of an attack or were themselves exposed to the chemical agents. Sixty-one of these refugees were interviewed by a Department of Defense (DOD) investigative team of medical-toxicological experts and State Department officials.

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Interviews and documents also were obtained from Hmong and Laotian refugees

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**Chemical Warfare  
Attacks**

Lethal and nonlethal chemical agents almost certainly have been used by forces of the People's Army of Vietnam and Laotian People's Liberation Army against dissident Hmong (Meo) tribesmen over a period of almost four years, beginning in 1976. The latest reported attack occurred in April 1980. At least 150 chemical attacks were made against 86 widespread villages and camps, mostly in mountain areas. The populations of each of the specific targeted areas ranged from as few as seven to as many as 8,000 inhabitants. Reports indicate that a total of 7,300 to 8,400 individuals were affected by the chemical agents, and between 3,200 and 3,700 died.

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Reports indicate that the large concentration of Hmong tribesmen in the Phou Bia area has been largely decimated. Only 1,500 tribesmen were reported to be living in the area as of October 1979, a significant decrease from 8,000 inhabitants in 1975. The reduction presumably was caused by the deaths of an estimated 1,200 to 1,500 tribesmen from the chemical attacks. The rest probably fled to other locations in Laos and to refugee camps in northern Thailand or were killed in conventional warfare. Additionally, large numbers of domestic animals reportedly were killed by chemical assaults.

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The majority of the CW attacks occurred in the north-central area of Laos in the Louangphrabang, Xiangkhoang, Houphan, and Vientiane Provinces and especially in the Hmong strongholds in the vicinity of Phou Bia in central Xiangkhoang Province. At least six of these assaults against the Hmong occurred in the area around Ban Don near Loang Phrabang, in Loangphrabang Province. One of the attacks was reported in southern Laos along the Phou Sanghe mountain range in Savannakhet Province (see map).

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The widespread geographical distribution of the CW attacks, the number of reports, the consistency of the reporting of the assaults, and the fact that the refugees doing the reporting were in widely separated refugee camps support the judgment that lethal chemicals were used in Laos. A coordinated propaganda campaign by Lao and Hmong refugees to discredit the Laotian and Vietnamese regimes for using CW is possible but is believed to be unlikely in view of the widely dispersed attacks and sources of information. [ ]

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Evidence suggesting a testing situation was reported by one Hmong refugee. In that instance, mask-protected soldiers of the Laotian People's Democratic Republic (LPDR) entered a strike area immediately after a gas attack and injected the approximately 20 survivors with a solution that was apparently an antidote, although five of the victims subsequently died. The remainder were kept in a hospital five days for observation and additional injections. They were then sent to a detention center. [ ]

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#### Medical Symptoms

The medical symptoms reportedly produced by the chemical agents are many and range from mild, temporary incapacitation or severe incapacitation to death. These reported symptoms may be exaggerated or complicated by the poor physical condition of the victims and by the emotional impact of attack. [ ]

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All eyewitness accounts of symptomatic effects generally agree with those reported by the DOD investigative team of medical experts, who concluded that at least three different chemical agents were used. In some cases, two or more agents probably were used in the same attack. The described effects indicate that a riot-control agent, a nerve agent, and an unknown toxic chemical that induces massive bleeding from the gastrointestinal tract were used singly or in combination. [ ]

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The use of a nerve agent and another lethal but unidentified chemical indicates Soviet involvement in the Laotian CW operations. While the Soviets are believed to have supplied filled chemical munitions and possibly bulk agents, neither Laos nor Vietnam is believed to have the capability to produce nerve agents or chemical munitions on the scale necessary to conduct even limited chemical warfare. [ ]

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The range of clinical manifestations from the chemical agents, as reported by a US Army investigative team, included:

- Immediate onset of headache, dizziness, tearing, blurred vision, chest tightness, difficult breathing, vomiting, diarrhea, muscle weakness, and

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convulsions, followed by death in minutes to hours—suggesting a nerve agent.

- Immediate irritation and tearing of the eyes, irritation of the nose and throat, tightness of the chest, difficulty in breathing, and skin irritation—suggesting a riot control agent, such as CS. Similar effects may be exhibited by persons dosed with other riot control agents, toxic smokes (such as diphenyl chlorarsine), screening smokes, and below-lethal levels of nerve agent.
- In some instances, victims not only had the above symptoms but also suffered almost immediate onset of severe bleeding from nose and eyes, vomiting of blood, bloody diarrhea, and rapid death—indicating a highly toxic, unidentified chemical or mixture of chemicals. [REDACTED]

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In addition to the above symptoms, some refugees reported minor blistering of their skin and holes burned through leaves of plants, suggesting that a white phosphorous smoke was used. This agent—although classed as a screening smoke—is also an incendiary, and its particulates would burn skin and vegetation. In a few cases, severe blistering and skin erosion were described. [REDACTED]

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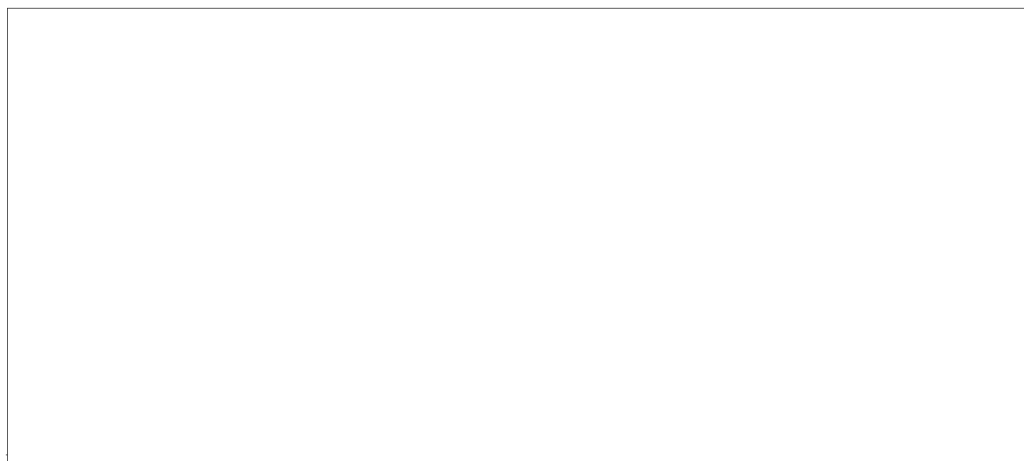
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**Munitions**

Eyewitness accounts of the CW attacks indicate that Soviet-built AN-2 or L-19 aircraft were used in the majority of the attacks. Helicopters and possibly even MIGs were used in a small number of the attacks. The chemical agents were disseminated by rockets, sprays, and bombs. In some instances, both shrapnel and chemical-filled rockets were fired.

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The color of the agent cloud was reported to be yellow or yellow combined with another color in about 75 percent of the cases in which color was reported. Other colors included red, blue, green, white, and brown. There was no obvious correlation between the agent cloud color, the delivery system, or the multiplicity of symptomatic effects.

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A toxic chemical agent probably would produce a yellow or white cloud or colorless vapor, depending on the chemical being released and the density and physical form of the cloud, that is, smoke, liquid, liquid aerosol, or vapor. Four possible explanations of the various colored smokes, in order of probability, are: (1) they were used to direct air operations for chemical attacks or bombing and strafing attacks; (2) they were disseminated to establish downwind hazard; (3) they were dispensed as a tracer with the toxic chemical in order to define and photograph the area coverage in a testing situation; and (4) their colors were imagined by the people under pressure of attack.

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While most munitions used by the Vietnamese probably are shipped fully loaded from the Soviet Union, the Laotian and Vietnamese forces possibly are using some modified US-manufactured rockets for dissemination of chemicals.

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In 1977, a Hmong refugee [redacted]

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[redacted] reportedly found a rocket canister and a separated warhead that he believed were the kinds used by the Vietnamese and Laotians. The rocket contained authentic US markings identifying it as a US-manufactured 2.75-inch rocket. The rocket also was reported to be marked with three lines of untranslated Russian writing. Another Hmong [redacted]

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[redacted] stated that he believed the rocket canister was of US manufacture but the Soviets in Laos had modified the upper stage to contain a poisonous [lethal] chemical. [redacted]

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The reported diameter of 12.5 centimeters (5 inches) probably is a measurement taken on a modified warhead since the United States does not have a 5-inch warhead for the 2.75-inch "rocket motor." During the United States-Vietnam conflict, about 35 million US-manufactured 2.75-inch rockets were sent to the war zone, and the capture of some of these rockets by Vietnamese forces is considered likely. The usual US fills for these rockets were white phosphorous, high explosives, fletchettes (metal fragments), and some CS. The Vietnamese may be using some of these rockets with existing loads, but modified warheads for the 2.75 inch rocket motor probably could be fabricated and filled with a lethal or nonlethal agent in Laos, especially with Soviet assistance. According to US experts, fabrication of a 5-inch diameter warhead necked down to fit the 2.75-inch rocket could be accomplished by trained technicians in a small, well-equipped machine shop and laboratory [redacted]

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A special LPDR Air Force unit reportedly is responsible for chemical warfare rockets. This unit is commanded by a Soviet-trained Lao and has attached a Soviet rocket expert. Actual modification of captured US-manufactured 2.75-inch rockets to contain lethal CW agents reportedly is done routinely in Laos with agents supplied by the Soviets under the direction of Soviet and Vietnamese experts. Small but adequately equipped three- to four-man facilities for this activity reportedly are located in Vientiane, in Phong Savan in Xiengkhouang Province, and in Savannakhet Province. [redacted]

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